

Perception of Lecturers on the Effectiveness of Using Whatsapp for Academic Activities Among University Students in North-Central Nigeria as a Panacea for Overcoming Lockdown

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Abstract

Advancement in technology is expanding different ways of approaching academic activities both at secondary school level and tertiary institutions. One of the most widely used social media platforms that has won over young intellectuals is WhatsApp. This piqued the attention of the researchers, who used two research questions and one research hypothesis to lead their investigation into how lecturers saw the usefulness of using WhatsApp for academic purposes among university students in North-Central Nigeria as a way to get around lockdown. 200 randomly selected respondents from five universities in north-central Nigeria were asked to complete a questionnaire as part of the study's descriptive survey approach. Data was gathered from university instructors using a questionnaire called "Perception of lecturers on the effectiveness of the use of WhatsApp for academic activities" (PLEUWAA). With an index of 0.87, the Cronbach Alpha Coefficient was used to verify the instrument and assess its dependability. The data collected from the respondents was analysed using mean and standard deviation, and hypotheses were evaluated using the t-test at the 0.05 level of significance. The results showed that professors, both male and female, had almost identical opinions on how beneficial the WhatsApp platform was. Based on the results, it was suggested that instructors utilise the WhatsApp platform to instruct students during lockdowns, and that university administration provide data so that instructors may easily instruct students at the appropriate moment.

Keywords: Perception, Lecturers, Effectiveness, WhatsApp, Academic activities, University.

Introduction

Social media networks, particularly WhatsApp, are becoming more and more popular among Nigerian students (Shittu and Taiwo, 2023). According to Yunusa and Bukar (2022), students are already used to WhatsApp and use its many functions for a variety of reasons, which makes it easy for them to embrace and integrate it as a learning aid. WhatsApp is one social media platform that

may be able to help teaching and learning in higher education. WhatsApp is a web-based instant messaging service and smartphone app that lets users share information via text, picture, video, and voice communications (Rilwan and Umoru, 2021). According to Muhammad-Lawal et al. (2024), WhatsApp is a smartphone program that enables the exchange of images, audio-visual data, links to websites, and instant messages to people or groups. Additionally, students may use WhatsApp, a free multiplatform messaging program, to exchange text messages, conduct audio and video conversations, and more via a Wi-Fi connection (Jacob et al., 2024). It is well-liked by friends and family who reside overseas and want to remain in contact, and it has more than 2 billion active members. Nna-Etuk et al. (2024) claim that WhatsApp is now the most popular Microsoft identity management app.

WhatsApp is a social networking platform for educational purposes that fosters connections between students and teachers and may help kids do better academically. WhatsApp may thus be used as a tool to improve meaningful context-free learning, provide peer-based and hierarchical assistance, bridge access to learning materials, and use on-task behaviour.

WhatsApp promotes collaborative learning by increasing students' social interaction with teachers and one another. According to Evans (2023), a large number of people choose WhatsApp over other social media platforms because it is more affordable, allows for an infinite number of messages, provides immediate feedback, allows for ongoing conversations with multiple friends at once, fosters social cohesion, and offers more privacy. Similarly, Muhammad-Lawal et al. (2024) noted that WhatsApp is simple to use, has a low data use cost, and can be used to exchange web URLs and transmit audio and video. In order to accommodate customer demands, it is simple to update and quickly add new features. WhatsApp is often used in classrooms for communication between professors and students (Pradana et al., 2022). WhatsApp is a free messaging service that works on a variety of devices, including laptops, smartphones, tablets, and PCs. When students need to work together on group projects or assignments, the app offers a quick and easy method for them to connect with their professors and one another. They also make learning more participatory and accessible by facilitating the rapid exchange of materials and information. WhatsApp may help with the organisation of informal and formal learning, foster reflection, and establish instant relationships (Nna-Etuk et al., 2024).

WhatsApp may thus be used to improve meaningful context-free learning, provide peer-based and hierarchical assistance, bridge access to learning materials, and capitalise on on-task behaviour. Additionally, WhatsApp may boost students' social interaction with teachers and each other, which promotes group learning. In order to provide regular, traditional courses, WhatsApp integrates the usage of multimedia elements, including images, music, videos, graphics, and text. In contrast to a typical classroom session, it offers a forum for professors to connect with students and encourages participation from everyone, even introverts. This increases students' confidence and involvement. Instructors may also utilise WhatsApp to give students learning resources like lecture notes, homework, and audio or video lessons. As a result, WhatsApp has enormous potential to improve engagement in learning. The academic performance of pupils who are trained to use WhatsApp may be used to gauge its potential.

Academic success is the extent to which students have achieved their short-term or long-term learning goals (Rilwan and Umoru, 2021). According to Kevin et al. (2024), accomplishment is also the degree to which students are able to acquire the appropriate learning material, behaviours, and abilities necessary for both individual and social growth. Accordingly, Mohammed et al. (2024) noted that academic success is an indication of learning after a student has been exposed to

a certain therapy. At higher education institutions, students' success is reflected in their Cumulative Grade Point Average (CGPA). How successfully students exhibit their knowledge via written or oral tests, presentations, assignments, and involvement in class debates and activities determines their CGPA. According to Ezennaka et al. (2024), test scores are used to evaluate students' performance, which represents the value of their educational experience as well as a forecast of their future academic success. According to research by Sagagi et al. (2020), Rilwan and Umoru (2021), Ajayi and Olajide (2022), Bouzaiane and Dayananda (2023), Kevin et al. (2024), Ezennaka et al. (2024), and Mohammed et al. (2024), using suitable social media platforms like WhatsApp can improve students' performance. However, research by Darko-Adjei (2021) and Irfan and Dhimmarr (2019) has shown that WhatsApp has a detrimental effect on students' performance. This research aims to assess WhatsApp's impact on students' performance in order to reconcile these contradictory findings. Additionally, students must have a good opinion of WhatsApp and believe it is beneficial to their learning process in order to get the most out of its utilisation.

The capacity to represent and comprehend the social world via the management, organisation, and interpretation of sensory data is known as perception. The senses of sight, hearing, smell, and taste are all part of perception. The process by which a stimulus is received by the senses and then transmitted by the brain to the individual results in perception, also known as the innate capacity to comprehend or observe information. Students will completely benefit from using WhatsApp when they have a good attitude towards its use and believe it helps them study. Students will not, however, completely benefit from WhatsApp use if they do not have a favourable opinion of its use and do not believe it to be beneficial for their learning process. Students must thus have personal experiences and presumptions in addition to hearing, seeing, and feeling while providing perspectives. due to the significance of comprehending how people see educational technology. According to studies by Nyinondi and Mwakapina (2023), Sagagi et al. (2020), Morsidi et al. (2021), and Bouzaiane and Dayananda (2023), students had a favourable opinion of WhatsApp. Hence, the necessity to examine students' attitude towards the efficacy of WhatsApp for teaching and learning considering gender.

Gender is a attribute that divides male and female in the classroom (Bahago et al., 2021). Gender refers to the particular manufactured phenomena that is brought about by social socio-cultural and religious ascription of various responsibilities, tasks, behaviours, and mannerism to two sexes (Kevin et al., 2024). Given the significance of gender in all human pursuits, research conducted by Ezennaka et al. (2024) showed that when taught via WhatsApp, females outperformed males. However, earlier studies by Fadipe et al. (2023) and Ojo et al. (2023) found no discernible difference between male and female students' performance. Therefore, the need to evaluate the effectiveness of WhatsApp for teaching and learning among undergraduate students based on gender.

Statement of the Problem

The integration of information and communication technology (ICT) in education has received a lot of attention because of its significance for national development. Furthermore, since colleges in many nations have shuttered their physical campuses, the COVID-19 epidemic has had an unparalleled impact on education globally. According to Bahago et al. (2021), 1.5 billion children were unable to attend school as a consequence of the COVID-19 epidemic as of April 4, 2020. According to Peter et al. (2023), the Nigerian educational system had a setback as a consequence of the COVID-19 epidemic. The government closed schools in an effort to stop the virus's spread,

which resulted in a halt to academic activity and an interruption to exams. Given that COVID-19 caused students in Nigeria to miss class without making the quick switch to online learning that has been seen in other nations, it is evident that both lecturers and students in Nigeria were ill-prepared, as they had previously relied entirely on traditional teaching methods despite the country's emphasis on ICT. The need to quickly adapt to new technologies in order to effectively use online educational and social platforms like Microsoft Teams, Google Hangouts, Zoom, Facebook, Twitter, WhatsApp, and others has been suggested by researchers as a way to overcome geographical limitations in education (Evans, 2023). Additionally, many people looked for alternative teaching methods during the COVID-19 pandemic, which has led to a paradigm shift in education because it places a great deal of pressure on both students and instructors to adapt to the new virtual setting. WhatsApp was one of the most popular venues for online learning. WhatsApp makes it simple for students and instructors to communicate with them other and with each other. They may share papers, audio, photographs, and messages, and its special feature is group discussions. According to Fadipe et al. (2023), WhatsApp makes it possible to use computer-based technology in the classroom in creative ways. During the Covid-19 outbreak, WhatsApp used as a substitute platform for regular classroom instruction in schools to lessen the impact on the continuation of education. If comparable pandemics occur in the near future, evaluating the efficacy of utilizing this platform as a substitute for conventional classroom instruction is essential. Therefore, this study evaluates the Perception on the effectiveness of using WhatsApp for teaching and learning among Veritas university students as a panacea for overcoming lock down.

Purpose of the Study

The study investigated the perception of lecturers on the effectiveness of using WhatsApp for academic activities among university students in North-Central Nigeria as a panacea for overcoming lockdown. Specifically, the study was to:

1. Determine the perception of lecturers on the effectiveness of the use of WhatsApp for academic activities among university students in North-Central Nigeria; and
2. Determine the difference between the perception of male and female lecturers on the effectiveness of the use of WhatsApp for academic activities among university students in North-Central Nigeria.

Research Questions

1. What is the perception of lecturers on the effectiveness of the use of WhatsApp for academic activities among university students in North-Central Nigeria?
2. What is the difference between the perception of male and female lecturers on the effectiveness of the use of WhatsApp for academic activities among university students in North-Central Nigeria?

Hypothesis

H₀₁ There is no significant difference between the perception of male and female lecturers on the effectiveness of the use of WhatsApp for academic activities among university students in North-central Nigeria.

Methodology

The study employed a descriptive survey method and a questionnaire to collect responses from 200 lecturers who were chosen at random from five public universities: Federal University Lokoja Kogi State, Federal University of Agriculture Makurdi Benue State, Federal University of Technology Minna Niger State, University of Abuja FCT, and Nasarawa State University Keffi. Purposively chosen for the research was a sample of 100 male and 100 female teachers with some experience using WhatsApp for academic purposes, including delivering lectures, creating assignments, and sending notes. An instrument titled “Perception of Lecturers on the Effectiveness of the Use of WhatsApp for Academic Activities” (PLEUWAA) was used for data collection from both male and female lecturers. The gadget was confirmed by two experts in testing and measuring. Test-retest reliability was evaluated using the Cronbach Alpha Coefficient, which had an index of 0.87. The t-test was used to evaluate the null hypothesis at the 0.05 level of significance after the research questions were examined using the mean and standard deviation.

Results

Research Question 1: What is the perception of lecturers on the effectiveness of the use of WhatsApp for academic activities among university students in North-Central Nigeria?

Table 1: Mean and standard deviation analysis showing perception of lecturers on the effectiveness of the use of WhatsApp for academic activities among university students in North-Central Nigeria

S/N	Item	Level of Agreement				Mean	Std Dev.	Decision
		SA	A	D	SD			
1	I use WhatsApp in getting up-to-date information	112	40	23	25	3.20	0.98	Agreed
2	I discuss school work on WhatsApp with my colleagues	111	61	16	12	3.36	1.09	Agreed
3	I join voice call on WhatsApp platform during meeting in which I am not physically present	97	40	44	19	3.08	0.97	Agreed
4	My friends and I share academic ideas on WhatsApp	118	55	23	4	3.44	0.99	Agreed
5	The use of WhatsApp is preferable to onsite	25	42	58	75	2.09	1.12	Disagreed
Average Mean/Standard Deviation						3.03	1.03	Agreed

Scale Mean 2.50, n=200

The mean analysis of lecturers' opinions on the usefulness of using WhatsApp for academic purposes among North-Central Nigerian university students is shown in Table 1. The table showed that although the mean value of 2.09 disagreed with item 5, the mean values of 3.20, 3.36, 3.08, and 3.44 agreed with items 1, 2, 3, and 4. According to the aggregate mean of 3.03, which was higher than the scale mean of 2.50, some respondents agreed that they use WhatsApp to get the most recent information, discuss schoolwork with colleagues, participate in voice calls on the platform during meetings where they are not physically present, and share academic ideas with friends. Many respondents, however, disagreed that using WhatsApp is better than being on-site.

Research Question 2: What is the difference between the perception of male and female lecturers on the effectiveness of the use of WhatsApp for academic activities among university students in North-Central Nigeria?

Table 1: Mean and standard deviation analysis showing difference between the perception of male and female lecturers on the effectiveness of the use of WhatsApp for academic activities among university students in North-Central Nigeria

Number of Male Lecturers = 100; Number of Female Lecturers = 100

S/N	Item	Level of Agreement				Mean Difference	Decision
		Male		Female			
		Lecturers	Lecturers	Lecturers	Lecturers		
		Mean	StD	Mean	StD		
6	I use WhatsApp in teaching my students.	3.23	1.02	3.21	0.99	0.02	Agreed
7	I discuss school work on WhatsApp with my students	3.12	0.98	3.10	0.98	0.02	Agreed
8	I encourage my students to study on Group WhatsApp platform with their friends	3.20	1.13	3.18	1.08	0.02	Agreed
9	My colleagues and I share academic ideas on WhatsApp	3.06	1.00	3.05	1.06	0.01	Agreed
10	The use of WhatsApp requires data and stable source of power	3.02	1.02	2.98	1.04	0.04	Agreed
Aggregate Mean/Standard Deviation		3.13	1.03	3.10	1.03	0.02	Agreed
Scale mean = 2.50							

The mean analysis of the difference between male and female professors' perceptions of how successful WhatsApp is for academic purposes among university students in North-Central Nigeria is shown in Table 2. With a mean difference of 0.02 between the male and female professors, the average ratings of items 1, 2, 3, 4, and 5 were 3.13 and 3.10, respectively, over the cut-off criterion of 2.50. Given that both male and female instructors had high incomes, this suggested that they utilised the WhatsApp platform in much the same manner.

Test of Hypothesis

The only null hypothesis was tested using t-test at 0.05 level of significance.

H₀₁: There is no significant difference between the perception of male and female lecturers on the effectiveness of the use of WhatsApp for academic activities among university students in North-Central Nigeria.

Table 3: T-test analysis showing difference between the perception of male and female lecturers on the effectiveness of the use of WhatsApp for academic activities among university students in North-Central Nigeria

Groups	N	Mean	Std. Deviation	Df	t cal.	P-value	Sig	Decision
Male	100	13.20	4.603					
				198	0.865	0.391	0.05	Not Significant
Female	100	12.39	6.264					

Not Significant at $\alpha = 0.05$

Table 3 displays a t-test examination of the disparity between how male and female instructors are seen by university students in North-Central Nigeria about the usefulness of using WhatsApp for academic purposes. The outcome showed that the t-test's computed value was 0.865. The p-value exceeded the significance threshold of 0.05. Hypothesis 1 was kept since the p-value was higher than 0.05 ($p > 0.05$), suggesting that university students in North-central Nigeria did not significantly differ in their opinions of the usefulness of using WhatsApp for academic purposes between male and female lecturers. As a result, teachers, both male and female, had almost identical opinions on how well university students in North-Central Nigeria used WhatsApp for academic purposes.

Discussion of Findings

The study found that the aggregate mean of 3.03 for research question one was higher than the scale mean of 2.50, indicating that some respondents agreed that they use WhatsApp to get up-to-date information, discuss schoolwork with colleagues, participate in voice calls on the platform during meetings where they are not physically present, and share academic ideas with friends. Many respondents, however, disagreed that using WhatsApp is better than being on-site. This result was consistent with Evans (2023), who noted that a considerable portion of people choose WhatsApp over other social media platforms because of its affordability, unlimited message sending capacity, real-time feedback, ability to support ongoing conversations with multiple friends at once, social cohesion promotion, and improved privacy. Similarly, Muhammad-Lawal et al. (2024) noted that WhatsApp is simple to use, has a low data use cost, and can be used to exchange web URLs and transmit audio and video.

The study found that the average ratings of items 1, 2, 3, 4, and 5 for the male and female lecturers, respectively, were 3.13 and 3.10, over the cut-off mark of 2.50 with a mean difference of 0.02 in response to research question two. The high incomes of both male and female teachers suggested that their use of the WhatsApp network was almost same.

Additionally, the results of hypothesis one showed that the computed t-test value was 0.865. The p-value exceeded the significance threshold of 0.05. Hypothesis 1 was kept since the p-value was higher than 0.05 ($p > 0.05$), suggesting that university students in North-central Nigeria did not significantly differ in their opinions of the usefulness of using WhatsApp for academic purposes between male and female lecturers. As a result, teachers, both male and female, had almost identical opinions on how well university students in North-Central Nigeria used WhatsApp for academic purposes.

Conclusion

This research demonstrates how instructors in North-Central Nigerian universities use WhatsApp as a magic bullet for getting through lockdowns when it comes to academic tasks. It demonstrated that instructors' use of the WhatsApp app to instruct their students during lockdown was successful.

Recommendations

The findings of the research led to the following recommendations being made:

1. Lecturers could use WhatsApp platform to teach their students whenever there is lockdown.
2. University management should make provision for data so that lecturers could teach their students at the right time without any challenge.

References

- Ajayi, L. F., & Olajide, I. E. (2022). Effects of WhatsApp group learning platform on senior secondary schools' students' learning outcomes in Science, Technology, and Mathematics (stm) in Ekiti State, Nigeria. *Educational Research and Reviews*, 17(8), 213-218. DOI: 10.5897/ERR2022.4255
- Bahago Samaila Benedict, Nduji Romanus; Fadipe Bayo Michael; & Oriaku Chris (2021). Impact of Social Networking on Nigerian Private Universities in the face of Covid-19 (A Case Study of Nile University, Abuja, Nigeria): Implications for Counselling. *Journal of Educational Research and Library Science*. 5(8) 35-62.
- Bahago Samaila Benedict, Adeola, Ngozi Adedaja, Fadipe, Bayo Michael., & Asemota Ruth. (2021). Impact of Child Labour on Pupils Academic Performance Amidst COVID-19 in Tafa LGA of Niger State: Implications for Counselling. *International Journal of Contemporary Education Research (IJCER)*. 23(8). 33-46.
- Darko-Adjei, N. (2021). Assessing the impact of social media platforms on students learning activities in the university of Ghana amidst covid-19". *Library Philosophy and Practice* (e-journal). 5216
- Ekpe, I. P., Ojo, F. R., Amaechi, D., Onukwuba, M., & Ebong, A. (2023). The effects of covid-19 pandemic on biological students' practical and efficient ways of overcoming these challenges in any future emergencies using Veritas University as a case study. *Journal of Coastal Life Medicine*, 1(11), 2128–2137.
- Evans, K. O. (2023). The use of WhatsApp in the learning process among graduate students in the University of Nairobi, Kenya. *African Journal of Education and Practice*, 9(1), 1 – 15.
- Ezennaka, A. O., Anierobi, E. I., Oyeyemi, A. A., & Ezeonwumelu, V. U. (2024). Effects of whatsapp handle connectedness and follow-up by lecturers on academic performance of university students. *Sapientia Foundation Journal of Education, Sciences and Gender Studies*, 6(1), 443 – 452.
- Ezennaka, A. O., Nwosu, K. C., Okeke, N. U. & Anierobi, E. I. (2021). Influence of socio-demographic variables on students' social media addiction. *Journal of the Nigerian Academy of Education*, 17(2), 109-125.
- Fadipe, Bayo Micheal., Peter Joy Abosede & Idakwoji Sunday Bene (2023). Investigation into the Accessing of E-Books for Learning Among Colleges of Education Science Students in Kaduna State Nigeria *Journal of Education Research and Library Practice*. (JERLP).27(8) 25-34
- Fadipe Bayo Michael, Uwaechia Francis Chidi, Engr. Dr. Sola Emmanuel & Peter Joy Abosede (2023). Investigation into the Accessing of online Resources for Learning Among Secondary School Science Students in Niger State Nigeria. *African Journal of Educational Research and Library Practice* (AJERLP). 2(2). 73-84
- Irfan, M., & Dhimmarr, S. (2019). Impact of whatsapp messenger on the university level students: A psychological study. *International Journal of Research and Analytical Reviews*, 6(1) 572- 586
- Jacob, T. O., Nduka, N. N., & Wonah, F. A. (2024). Effect of social media on academic performance of entrepreneurial undergraduates in rivers state Nigeria. *Global Journal of Social Sciences*, 23(1), 307-316. <https://dx.doi.org/10.4314/gjss.v23i2.8>
- Kevin, T., Usman, I. S., & Dauda, D. M. (2024). Effects of whatsapp package on senior secondary school students' motivation, achievement and gender in physics in Jos, Plateau State, Nigeria. *Journal of Science Technology and Education*, 12(3), 460-467.

- Mohammed, I. A., Kuta, I. I., & Bello, A. (2023). Gender difference in undergraduates' micro-teaching performance using Telegram and WhatsApp platforms in collaborative learning settings. *Mediterranean Journal of Social & Behavioral Research*, 7(3), 183-190. <https://doi.org/10.30935/mjosbr/13665>
- Mohammed, I. A., Kuta, I. I., Falode, O. C., & Bello, A. (2024). Comparative performance of undergraduate students in micro-teaching using Telegram and WhatsApp in collaborative learning settings. *Journal of Mathematics and Science Teacher*, 4(2), em063. <https://doi.org/10.29333/mathsciteacher/14411>
- Morsidi, S., Samah, N. A., Rahman, K. A. A., Ashari, Z. M., Jumaat, N. F., & Abdullah, A. H. (2021). WhatsApp and its potential to develop communication skills among university students. *International Journal of Interactive Mobile Technologies*, 15(23), 23-43.
- Muhammad-Lawal, H., Rabi, I., & Atiku, M. L. (2024). Effect of integrating social media technology (whatsapp) and hands-on-activities in teaching chemistry practical on chemistry students' academic performance. *Journal of Science Technology and Education*, 12(4), 33-41.
- Nna-Etuk, G. M., Etefia, E. E., & Umoh, A. G. (2024). The effect of whatsapp and facebook on students' use of library in university of Uyo, Uyo, Nigeria. *International Journal of Applied Technologies in Library and Information Management*, 10(1), 1-10.
- Nyinondi, O. S., & Mwakapina, J. W. (2023). Perspectives of students, teachers and parents on the whatsapp platform remedy for covid-19 learning restrictions in tanzania. *East African Journal of Education and Social Sciences*, 4(3), 246-255. <https://doi.org/10.46606/eajess2023v04i03.0296>
- Ojo, M. O., Kakulu, O. E., & Peter, J. A. (2023). Impact of social media on academic performance of secondary school students in Bwari area council, FCT, Abuja. *Lafia Journal of Library and Information Science*, 3(1), 43-56.
- Peter, J. A. & Fadipe, B. M. (2023). Colleges of Education Science Teachers Awareness of E-Books in Sciences for Learning in Kaduna State *Journal of Educational Studies Trend and Practices*. (JESTP). 26(8) 63- 72.
- Pradana, S. (2022). Utilizing telegram and whatsapp as effective substitute media for teaching English. *Journal on Education*, 4(4), 1867- 1873
- Rilwan, D., & Umoru, T. A. (2021). Effects of whatsapp on the academic performance of business education students in cost accounting in federal colleges of education. *Al-Hikmah Journal of Educational Management and Counselling*, 3(1), 187-197.
- Sagagi, F. M., Muktar, B. G., Gumel, F. M., & Salami, K. D. (2020). Effects of social media - whatsapp on the academic performance of students in the federal university Dutse, Nigeria. *FUOYE Journal of Agriculture and Human Ecology*, 4(2), 1-10.
- Shittu, T. A., & Taiwo, Y. H. (2023). Acceptance of WhatsApp social media platform for learning in Nigeria: A test of unified theory of acceptance and use of technology. *Journal of Digital Educational Technology*, 3(2), ep2309. <https://doi.org/10.30935/jdet/13460>
- Yunusa, D. U., & Bukar, A. (2022). Students' usage of whatsapp instant messenger as a supporting tool for learning in Kaduna State, Nigeria. *International Journal of Education and Development using Information and Communication Technology*, 18(3), 147-158.